

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
3 June 2004 (03.06.2004)

PCT

(10) International Publication Number
WO 2004/047253 A1

(51) International Patent Classification⁷: **H02K 3/28**

[AU/AU]; 4/7 Weddell St, Parap, Darwin, Northern Territory 0820 (AU). **CAMILLERI, Steven, Peter** [AU/AU]; 6 Coorong Court, Stuart Park, Darwin, Northern Territory 0820 (AU). **GUYMER, Benjamin, David** [AU/AU]; 11/77 Sir Fred Schonell Drive, St Lucia, Brisbane, Queensland 4067 (AU). **GREAVES, Matthew, Campbell** [AU/AU]; 11/77 Sir Fred Schonell Drive, St Lucia, Brisbane, Queensland 4067 (AU).

(21) International Application Number:
PCT/AU2003/001495

(22) International Filing Date:
13 November 2003 (13.11.2003)

(25) Filing Language: **English**

(74) Agent: **KENNEDY, Byron, John**; 4/7 Weddell St, Parap, Darwin, Northern Territory 0820 (AU).

(26) Publication Language: **English**

(81) Designated States (*national*): AU, CA, CN, JP, NO, NZ, SG, US, ZA.

(30) Priority Data:
2002952687 15 November 2002 (15.11.2002) AU

(84) Designated States (*regional*): European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR).

(71) Applicant (*for all designated States except US*): **IN MOTION TECHNOLOGIES** [AU/AU]; 4/7 Weddell St, Parap, Darwin, Northern Territory 0820 (AU).

Published:

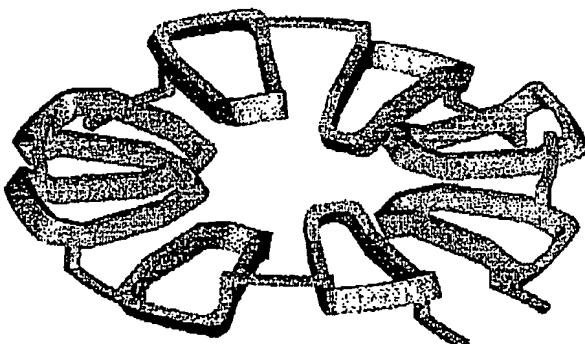
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **PATTERSON, Dean, James** [AU/US]; 103 Paces Brook Avenue, #10332, Columbia, SC 29212 (US). **KENNEDY, Byron, John**

(54) Title: POLY-PHASE ELECTROMAGNETIC DEVICE HAVING AN IMPROVED CONDUCTOR WINDING ARRANGEMENT



(57) **Abstract:** A poly-phase electromagnetic device having n winding phases ($n > 2$) wherein each phase is made from a single conductor strand wound in a lap form configuration. The windings are configured such that on assembly to a slotted magnetically conductive base a maximum of $n-1$ end turns overlapping is achieved so that the slot packing density can be optimised. The preferred configurations also enable neat and compact terminations which facilitates efficient packaging of the completed device. The windings are made either from discrete bobbins which are electrically interconnected upon assembly to the base, or alternatively from strings of continuously formed sub-windings. The latter process in particular enables full or partial automation of the winding and/or assembly process.